SMC Networks

SMCWEBT-G
EZ Connect™ g 108 Mbps Wireless AP

USER GUIDE

EZ Connect™ g 108 Mbps Wireless AP User Guide

From SMC's EZ line of low-cost workgroup LAN solutions

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COMPLIANCES

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

Industry Canada Statement

Operation is subject to the following two conditions:

This device may not cause interference and this device must accept any interference, including interference that may cause undesired operation of the device

This device has been designed to operate with an antenna having a maximum gain of 1.5 dBi.

Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

EC Declaration of Conformity CE①

SMC contact for these products in Europe is:

SMC Networks Europe,
Edificio Conata II,
Calle Fructuos Gelabert 6-8, 2o, 4a,
08970 - Sant Joan Despi,
Barcelona, Spain.

Marking by the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC). This equipment meets the following conformance standards:

- EN 300 328-1 December 2001 V1.3.1
- EN 300 328-2 December 2001 V1.2.1
- EN 301 489-1 September 2001 V1.4.1
- EN 301 489-17 September 2000 V1.2.1
- EN 60950 January 2000

Countries of Operation & Conditions of Use in the European Community

This device is intended to be operated in all countries of the European Community. Requirements for indoor vs. outdoor operation, license requirements and allowed channels of operation apply in some countries as described below:

Note: The user must use the configuration utility provided with this product to ensure the channels of operation are in conformance with the spectrum usage rules for European Community countries as described below.

- This device requires that the user or installer properly enter the current country of operation in the command line interface as described in the user guide, before operating this device.
- This device will automatically limit the allowable channels determined by the current country of operation. Incorrectly entering the country of operation may result in illegal operation and may cause harmful interference to other system. The user is obligated to ensure the device is operating according to the channel limitations, indoor/outdoor restrictions and license requirements for each European Community country as described in this document.
- This device may be operated *indoors or outdoors* in all countries of the European Community using the 2.4 GHz band: Channels 1 - 13, except where noted below.
  - In Italy the end-user must apply for a license from the national spectrum authority to operate this device outdoors.
  - In Belgium outdoor operation is only permitted using the 2.46 - 2.4835 GHz band: Channel 13.
  - In France outdoor operation is only permitted using the 2.457 - 2.472 GHz band: Channels 10 - 13.

Declaration of Conformity in Languages of the European Community

English	Hereby, SMC Networks, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Valmistaja SMC Networks vakuuttaa täten että Radio LAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart SMC Networks dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG Bij deze SMC Networks dat deze Radio LAN device voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente SMC Networks déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE
Swedish	Härmed intygar SMC Networks att denna Radio LAN device står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede SMC Networks erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF
German	Hiermit erklärt SMC Networks, dass sich dieser/diese/dieses Radio LAN device in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi) Hiermit erklärt SMC Networks die Übereinstimmung des Gerätes Radio LAN device mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)
Greek	Με την παρουσα smc networks δηλωνει οτι radio LAN device συμμορφωνεται προσ τισ ουσιωδεισ απαιτησεισ και τισ λοιπεσ σΧετικεσ διαταξεισ τησ οδηγιασ 1999/5/εκ

Italian	Con la presente SMC Networks dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente SMC Networks declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
Portuguese	SMC Networks declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Safety Compliance

Underwriters Laboratories Compliance Statement

Important! Before making connections, make sure you have the correct cord set. Check it (read the label on the cable) against the following:

Operating Voltage	Cord Set Specifications
120 Volts	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Parallel blade, grounding type attachment plug rated 15 A, 125 V
240 Volts (Europe only)	Cord Set with H05VV-F cord having three conductors with minimum diameter of 0.75 mm^2
	IEC-320 receptacle
	Male plug rated 10 A, 250 V

The unit automatically matches the connected input voltage. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the power adapter.

Information for Power Source

N11846

This unit is to be used with an external power adaptor of a Class 2 or level 3 type and Approved type suitable for use in the North America of equipment installation, having an output voltage rating of 5 V dc, and output current rating of 1.0A or equivalent.

Wichtige Sicherheitshinweise (Germany)

1. Bitte lesen Sie diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssigoder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlu ßsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Die Belüftungsöffnungen dienen der Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen, die sich am Gerät befinden, sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
    a. Netzkabel oder Netzstecker sind beschädigt.
    b. Flüssigkeit ist in das Gerät eingedrungen.
    c. Das Gerät war Feuchtigkeit ausgesetzt.
    d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
    e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
    f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
15. Stellen Sie sicher, daß die Stromversorgung dieses Gerätes nach der EN 60950 geprüft ist. Ausgangswerte der Stromversorgung sollten die Werte von AC 7,5-8 V, 50-60 Hz nicht über oder unterschreiten sowie den minimalen Strom von 1 A nicht unterschreiten.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70 dB(A) oder weniger.

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EZ CONNECT™ G 108 MBPS WIRELESS AP

Introduction

SMC's EZ Connect g 108 Mbps Wireless AP (SMCWEBT-G) can function as:

- an Ethernet adapter, providing a wireless connection via an RJ-45 connection to devices such as Microsoft Xbox and Ethernet ready embedded devices
- a standard IEEE 802.11g access point
- a wireless repeater, allowing you to effectively extend the coverage of another SMCWEBT-G that is configured to operate in Access Point mode

This solution offers fast, reliable wireless connectivity with considerable cost savings over wired LANs (eliminates long-term maintenance overhead for cabling). Just install enough wireless access points to cover your network area, plug wireless cards into your notebooks or install wireless adapters into your desktops, and start networking.

Use this device in conjunction with SMC's EZ Connect Wireless Cards to create an instant network that integrates seamlessly with Ethernet LANs. Moreover, moving or expanding your network is as easy as moving or installing additional access points – no wires!

Package Checklist

The EZ Connect g 108 Mbps Wireless AP package includes:

- One EZ Connect g 108 Mbps Wireless AP (SMCWEBT-G)
- One 5 VDC power adapter
- Installation CD containing this User Guide, EZ Installation Wizard, and Utility program
- One RJ-45 cable

Please register this product and upgrade the product warranty on SMC's web site at http://www.smc.com

Inform your dealer if there are any incorrect, missing, or damaged parts. If possible, retain the carton, including the original packing materials. Use them again to repack the product in case there is a need to return it.

HARDWARE DESCRIPTION

The Wireless AP provides up to 108 Mbps connections to Ethernet networks. This device is fully compliant with 2.4 GHz DSSS/OFDM wireless networking as defined in IEEE 802.11b/g. The Wireless AP is backward compatible with the existing 802.11b WLAN infrastructure. It also can be connected via an RJ-45 connection to devices such as Nintendo GameCube, Microsoft Xbox, Sony PlayStation II, and Ethernet ready embedded devices. It functions as an IEEE 802.11g Access Point or as a Repeater (see “Introduction” on page 1).

Figure 1. Rear Panel

Item	Description
Power Inlet	Connect the included power adapter to this inlet. **Warning**: Using the wrong type of power adapter may damage your adapter.
LAN Port	Fast Ethernet port (RJ-45). Connect device (such as a PC, hub or switch) on your network to this port.

Note: If you use the Reset button at the bottom of the device, the Wireless AP performs a power reset. If the button is depressed for over 8 seconds, all the LEDs will illuminate and the factory settings will be restored.

Applications

EZ Connect wireless products offer a fast, reliable, cost-effective solution for wireless Ethernet client access to the network in applications such as:

- **Video Game Systems**
  Provides wireless Internet access for users of video game systems such as Nintendo GameCube, Microsoft Xbox and Sony PlayStation II

- **Remote access to corporate network information**
  Email, file transfer, and terminal emulation

- **Difficult-to-wire environments**
  Historical or old buildings, asbestos installations, and open areas where wiring is difficult to employ

- **Frequently changing environments**
  Retailers, manufacturers, and banks which frequently rearrange the workplace or change locations

- **Temporary LANs for special projects or peak periods**
  Trade shows, exhibitions, and construction sites that need a temporary setup. Retailers, airline, and shipping companies that need additional workstations for peak periods. Auditors who require workgroups at customer sites

- **Access to databases for mobile workers**
  Doctors, nurses, retailers, or white-collar workers who need access to databases while being mobile in a hospital, retail store, in an office, or on a campus

- **SOHO users**
  SOHO (Small Office and Home Office) users who need easy and quick installation of a small computer network

LED Indicators

The Wireless AP includes three status LED indicators, as described in the following figure and table.

Figure 2. Front Panel

LED	Status	Description
TX/RX (wireless)	On (Blue)	The device has established a valid wireless link.
	Flashing (Blue)	The device is transmitting or receiving data via wireless.
LINK/ACT (WAN)	On (Blue)	The device has established a valid 100 Mbps Ethernet link.
	Flashing	The device is transmitting or receiving data on the Ethernet LAN.
PWR (power)	On (Blue)	Power is being supplied.

System Requirements

Before you install the Wireless AP, be sure you have met the following requirements:

- An AC power outlet (100~240 V, 50~60 Hz)
- An available RJ-45 (UTP) port on an Ethernet hub or switch
- 802.11b/g compliant wireless Ethernet adapters with TCP/IP protocols installed
- TCP/IP network protocol installed on each PC that needs to access the Internet
- A web browser, such as Microsoft Internet Explorer 5.5 or above installed on one PC at your site for configuring the Wireless AP

HARDWARE INSTALLATION

1. Select the site – Choose a location for your Wireless AP. Usually, the best location is at the center of your wireless coverage area, if possible within line-of-sight of all wireless devices.

2. Place the Wireless AP in a position that gives it maximum coverage. Normally, the higher you place the antenna, the better the performance.

3. If used in Client Bridge mode, connect the Ethernet cable to the RJ-45 socket of the device that will communicate over a wireless connection with an access point.

4. If used in Access Point mode, connect the SMCWEBT-G to an Ethernet network device such as a hub or a switch using category 3, 4, or 5 UTP Ethernet cable and an RJ-45 connector.

5. Connect the power adapter cable to the 5 VDC power socket on the rear panel.

Warning: Use only the power adapter supplied with the SMCWEBT-G.

SYSTEM CONFIGURATION

The SMCWEBT-G is a Plug-and-Play device. This means that, in most cases, you will not need to configure it.

The latest firmware version may be downloaded from the SMC web site specified on the back cover of this manual.

The SMCWEBT-G can be configured by a web browser, specifically Internet Explorer 5.5 or above. Using the web management interface, you can configure the Wireless AP and view statistics to monitor network activity.

Before you attempt to log into the SMCWEBT-G's web-based administration, please verify the following.

1. Your browser is configured properly (see below).
2. Disable any firewall or security software that may be running.
3. Confirm that you have a good link LED where your computer is plugged into the Wireless AP. If you don't have a link light – then try another cable to get a good link.
4. To access the Internet through the Wireless AP, you must configure the network settings of the computers on your LAN to use the same IP subnet as the Wireless AP. The default network settings for the Wireless AP are:

   SMCWEBT-G IP Address: 192.168.2.25
   Subnet Mask: 255.255.255.0

EZ Installation Wizard

To configure your SMCWEBT-G, first verify that your computer has an IP address in the same subnet as the SMCWEBT-G. If you are not familiar with this procedure, see the “Using IPCONFIG” section below.

Note: The default IP address of the SMCWEBT-G is 192.168.2.25

1. Insert the SMC EZ Installation Wizard & Documentation CD into your CD-ROM drive.
2. The EZ Installation Wizard will appear. Click **Configuration Utility** to begin the utility installation and setup process.

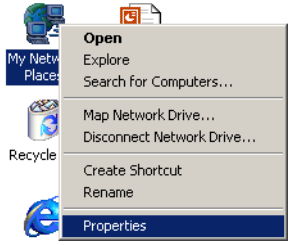
Using IPCONFIG

1. Click the **Start/Programs/Accessories/Command Prompt**.
2. DOS command prompt will appear.
3. Type **ipconfig** and press **Enter**.
4. Verify that your IP address is 192.168.2.xxx. If so, you can now use the SMC EZ Installation Wizard to configure your SMCWEBT-G. If your IP subnet is different, please go to the “Configuring Your IP Address” on page 11.

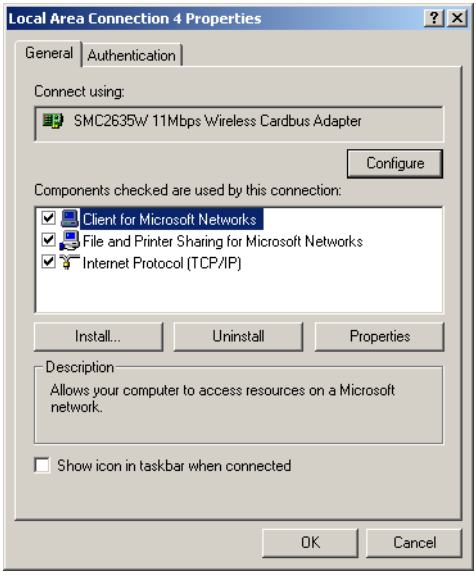
CONFIGURING YOUR IP ADDRESS

Windows 2000

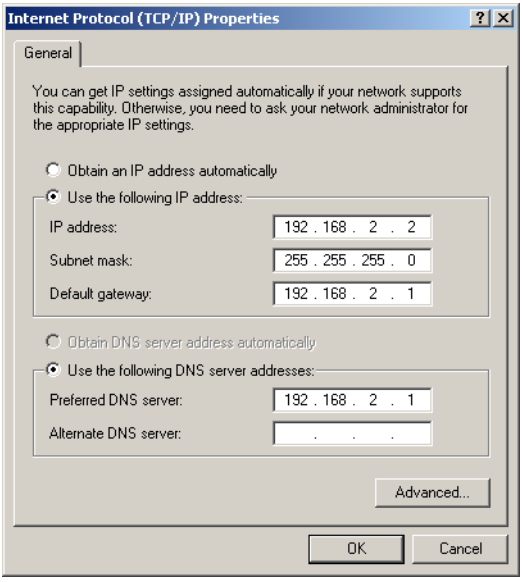
1. Right-click the **Network Places** icon on your desktop and click **Properties**.



2. Right-click your **Local Area Connection** and click **Properties**.



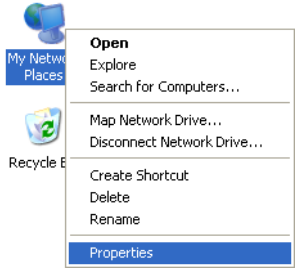
3. Click **Internet Protocol TCP/IP** and click **Properties**. Select the **Use the following IP Address** option and insert **192.168.2.x** (where x is 2~24, 26~254). Specify the default gateway and DNS server as indicated by your network administrator or Internet Service Provider.



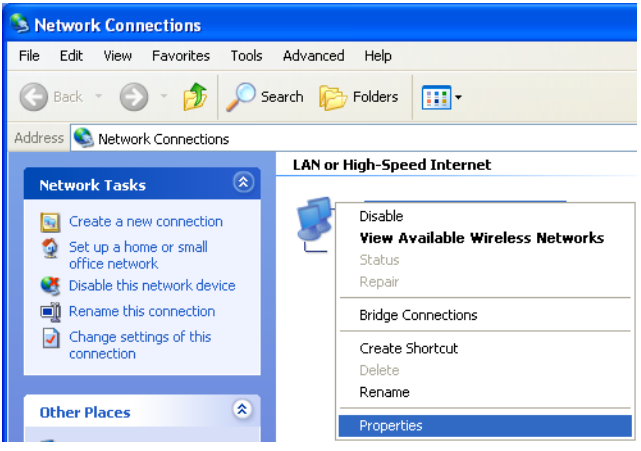
4. Click **OK** and click **Close** to continue and save the changes.

Windows XP

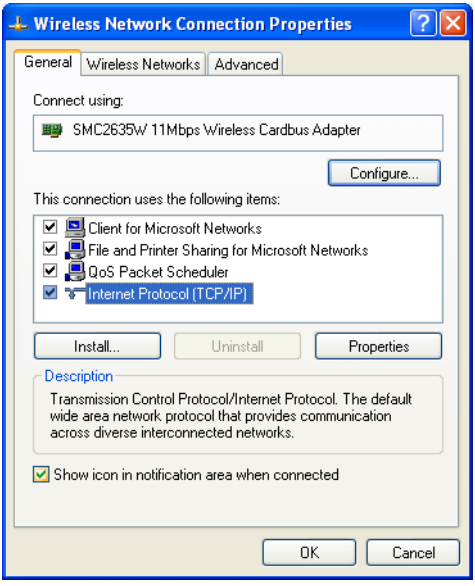
1. Right-click the **Network Places** icon on your desktop and click **Properties**.



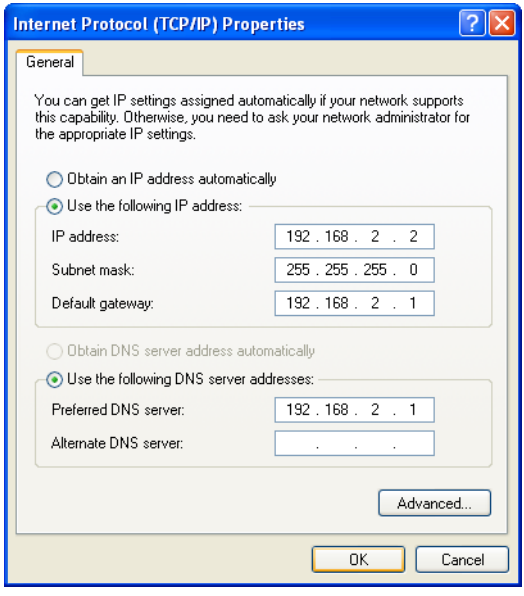
2. Right-click your **Local Area Connection** and click **Properties**.



3. Click **Internet Protocol TCP/IP** and click **Properties**.



4. Select the **Use the following IP Address** option and insert **192.168.2.x** (where x is 2~24, 26~254) for the IP address. Specify the default gateway and DNS server as indicated by your network administrator or Internet Service Provider.



5. Click **OK** and click **Close** to continue and save the changes.

Browser Configuration

Confirm that your browser is configured for a direct connection to the Internet using the Ethernet cable that is installed in the computer.

Disable Proxy Connection

You will also need to verify that the HTTP Proxy feature of your web browser is disabled. This is so that your web browser will be able to view the SMCWEBT-G configuration screens. The following steps are for Internet Explorer. Determine which browser you use and follow the appropriate steps.

Internet Explorer (5.5 or above) in Microsoft Windows

1. Open Internet Explorer. Click **Tools**, and then select **Internet Options**.
2. In the Internet Options window, click the **Connections** tab.
3. Click the **LAN Settings** button.
4. Clear all the check boxes and click **OK** to save these LAN settings changes.
5. Click **OK** again to close the Internet Options window.

Internet Explorer in Macintosh

1. Open Internet Explorer. Click **Explorer/Preferences**.
2. In the Internet/Explorer/Preferences window, under **Network**, select **Proxies**.
3. Uncheck all check boxes and click **OK**.

Navigating the Web Browser Interface

The Wireless AP's management interface consists of Setup Wizard, Home Network Settings, a Security section and Advanced Settings. Use the web management interface to define system parameters, manage and control the Wireless AP, or monitor network conditions. The following table outlines the selections available from this program.

Menu	Description
Setup Wizard	Use the Setup Wizard for quick and easy configuration of your Internet connection and basic LAN settings. Go to "Setup Wizard" on page 19 for detailed information.
Home Network Settings	Use the Home Network Settings section to configure your LAN, WAN and wireless settings. Go to "Home Network Settings" on page 25 for more information.
Status	Displays WAN/LAN connection status, firmware and hardware version numbers, and security log information.
Network Settings	Sets the TCP/IP configuration of the Wireless AP's LAN interface and DHCP setup.
Wireless	Configures the network operation mode and the wireless channel.
Security	Sets SSID, and security encryption for wireless communications. Controls access to your network clients based on the MAC (Media Access Control) address of the client machine. Go to "Security" on page 32.
Advanced Settings	Advanced Settings supports more advanced functions. Go to "Advanced Settings" on page 38.
Maintenance	Contains options to backup and restore the current configuration, restore all configuration settings to the factory defaults, update system firmware, or reset the system
System	Sets the password for administrator access

Making Configuration Changes

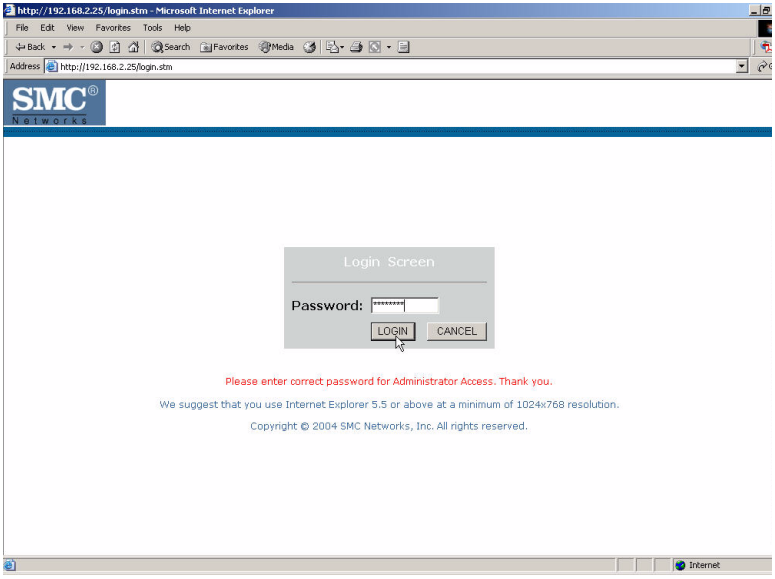
Configurable parameters have a dialog box or a drop-down list. Once a configuration change has been made on a screen, be sure to click the **SAVE SETTINGS** button at the bottom of the screen to enable the new setting.

Note: To ensure proper screen refresh after a command entry, ensure that Internet Explorer 5.5 is configured as follows: Under the menu **Tools/Internet Options/General/ Temporary Internet Files/Settings**, the setting for **Check for newer versions of stored pages** should be **Every visit to the page**.

Login Screen

To access the SMCWEBT-G's management interface, enter the Wireless AP IP address in your web browser http://192.168.2.25 Then enter the password and click **LOGIN**.
(Default password: **smcadmin**)

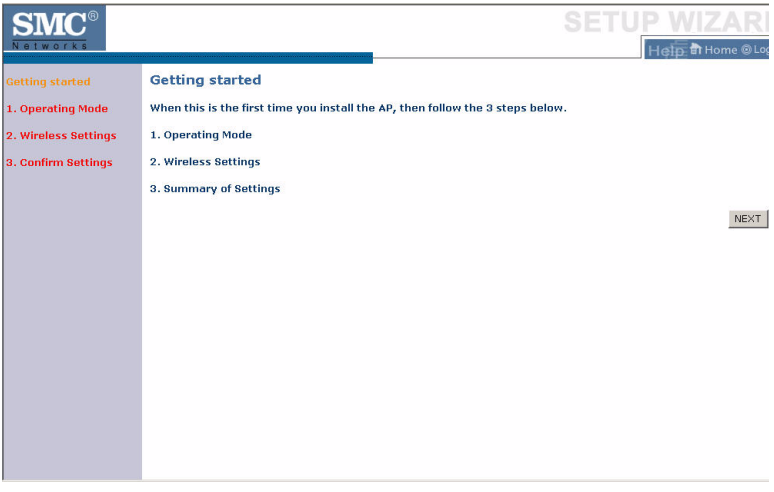
Note: Your password is case sensitive.



Setup Wizard

Getting Started

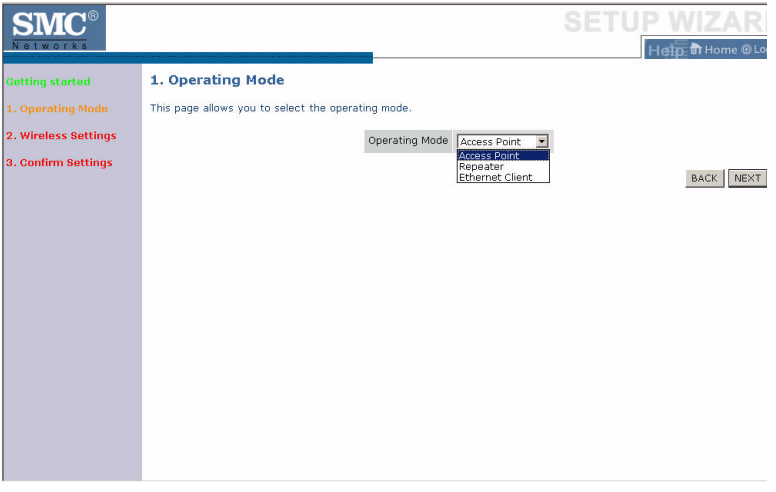
Click on the **SETUP WIZARD** button of the left-hand main menu. The first item in the Setup Wizard is **Getting Started**.



Simply click **NEXT** to proceed to the following screen and configure your wireless settings for your Wireless AP.

Operating Mode

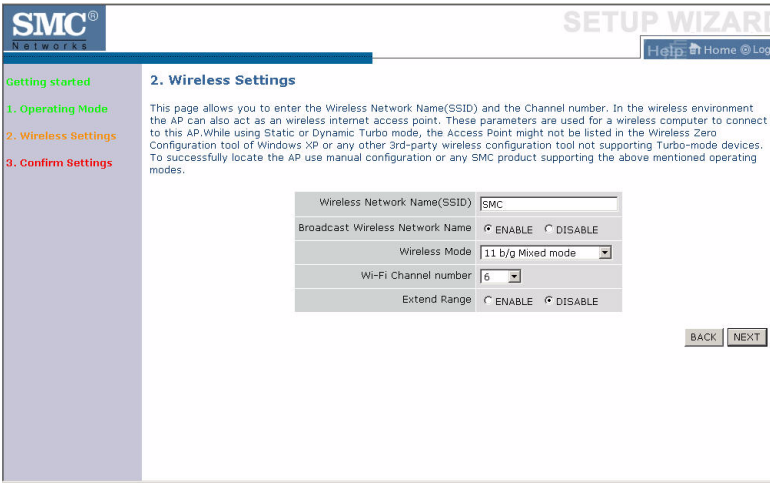
Select the wireless mode for your Wireless AP.



You can set the Wireless AP to act as a wireless **Access Point**, extending transmission range **Repeater**, or end-node **Ethernet Client** (Infrastructure, Ad Hoc). See “Operating Mode” on page 27 for details. (Default: Access Point)

Wireless Settings

Enter your wireless network settings on this screen. You must specify a common radio channel and SSID (Service Set ID) to be used by the Wireless AP and all of its wireless clients. Be sure you configure all of its clients to the same value. For security purposes, you should change the default SSID immediately.



Parameter	Description
Wireless Network Name (SSID)	The Service Set ID (SSID) is the name of your wireless network. The SSID must be the same on the Wireless AP and all of its wireless clients. (Default: SMC)
Broadcast Wireless Network Name	Enable or disable the broadcasting of the SSID. If you disable broadcast of the SSID, only devices that have the correct SSID can connect. This nullifies the wireless network “discovery” feature of some products such as Windows XP. (Default: Enable)
Wireless Mode	This device supports the following modes: 11g only, 11b only, 11b/g mixed mode, Super G-Dynamic Turbo and Super G-Static Turbo. (Default: 11b/g mixed mode)

Parameter	Description
Wi-Fi Channel Number	The radio channel used by the Wireless AP and its clients to communicate with each other. This channel must be the same on the Wireless AP and all of its wireless clients. The Wireless AP will automatically assign itself a radio channel, or you may select one manually. (Default: 6)
Extend Range	Increases the range of the Wireless AP. (Default: Disable)

Super G

Atheros' Super G is a series of intelligent mechanisms that engage when additional bandwidth is available and/or needed. It increases the actual end user throughput of an 802.11a/b/g network. These features include bursting, compression, fast frames and Dynamic and Static Turbo. These features are described briefly below.

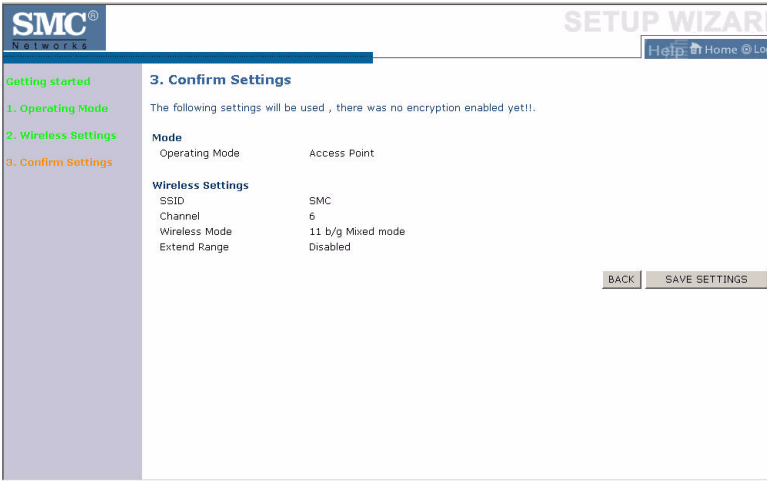
Super G Feature Summary

Feature	Characteristics	Benefit
Bursting	• More data frames per given time period • Standards-based • Relevant to STA	• Increase throughput via overhead reduction • 802.11e subset • Advantage applies to any AP
Compression	• Real-time hardware data compression • Standards-based Lempel-Ziv-Welch compression method	• Increased data throughput using compressed frames • No impact on host processor
Fast Frames	• Utilizes frame aggregation and timing modifications	• Increases throughput by transmitting more data per frame

Feature	Characteristics	Benefit
Dynamic Turbo	• Similar to trunking techniques used in Fast Ethernet networks, utilizes dual channels to “double” transmission rates • Analyzes environment and adjusts bandwidth utilization accordingly	• Maximizes bandwidth using multiple channels • Automatically adjusts to local environment
Static Turbo	• Utilizes dual channels to “double” transmission rates • Fixed dual-channel mode	• Maximizes bandwidth using multiple channels • Automatically set to use dual channels

Confirm Settings

The Confirm Settings screen displays a summary of the configuration parameters. It allows you to verify the new configuration of the Wireless AP.

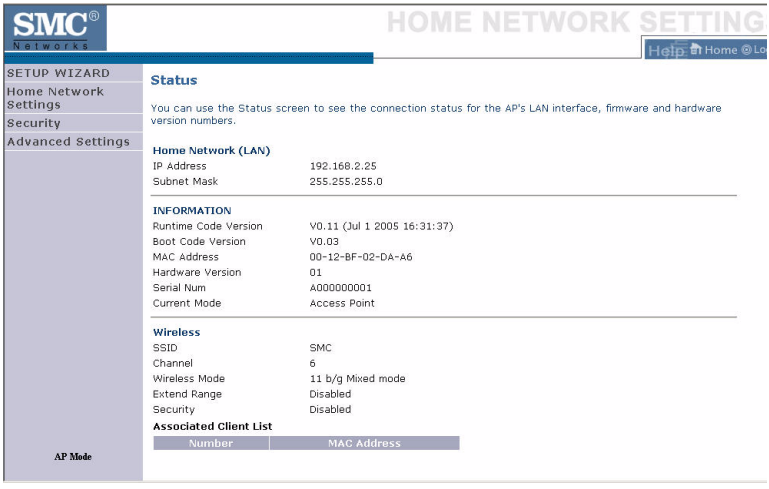


Click **SAVE SETTINGS** to enable the new settings, or click on **BACK** to change your settings.

Home Network Settings

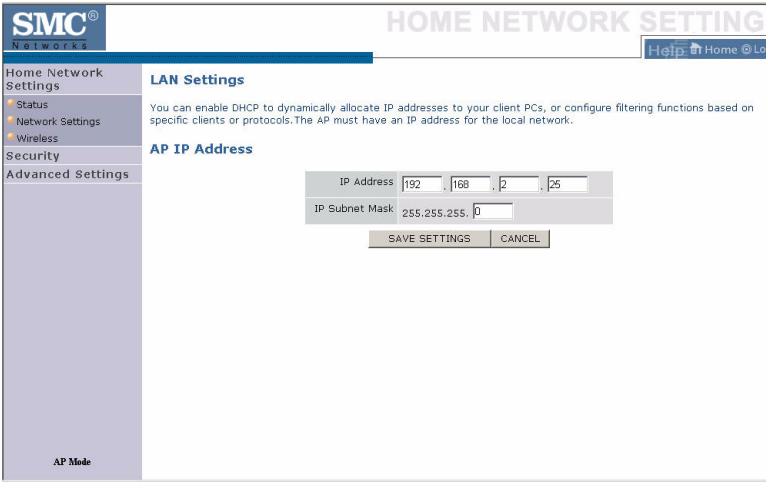
Clicking the **Home** icon at any time, returns you to this home page. The Main Menu links are used to navigate to other menus that display configuration status and parameters.

Status



The Status screen shows LAN/wireless connection status, firmware, and hardware version numbers of the SMCWEBT-G.

Network Settings



The **AP IP Address** field allows you to configure the network IP address of the Wireless AP. The default network settings for the Wireless AP are:

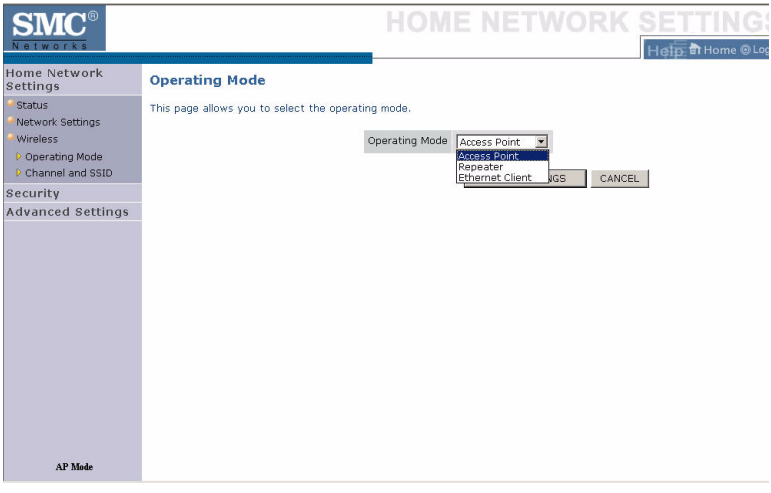
IP Address: 192.168.2.25
Subnet Mask: 255.255.255.0

If your Internet Service Provider has assigned a fixed IP address, enter the assigned IP address, subnet mask and gateway IP address for the SMCWEBT-G.

You may need a fixed address if you want to provide Internet services, such as a web server or FTP server.

Wireless

Operating Mode



This Wireless AP may be set to **Access Point**, **Repeater**, or **Ethernet Client** (Infrastructure, Ad Hoc). (Default: Access Point)

Notes: 1. After you choose the operation mode for the SMCWEBT-G, be sure to click the **SAVE SETTINGS** button to enable the new setting.

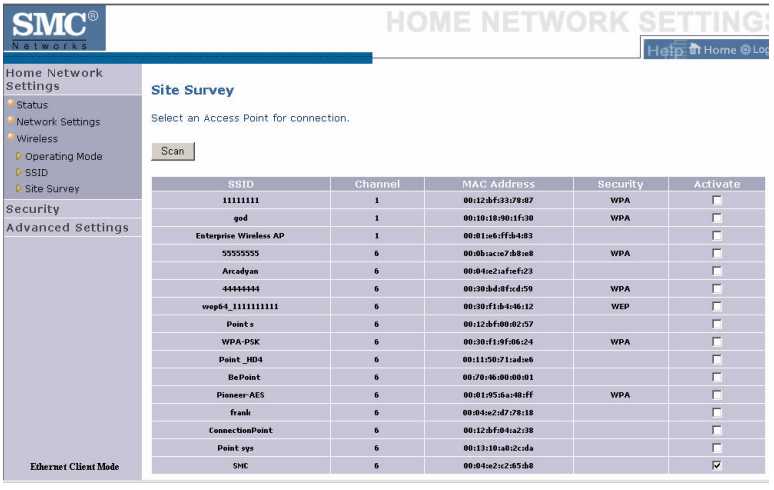
2. The Wireless AP will automatically reboot enabling your new settings.

These modes are described below:

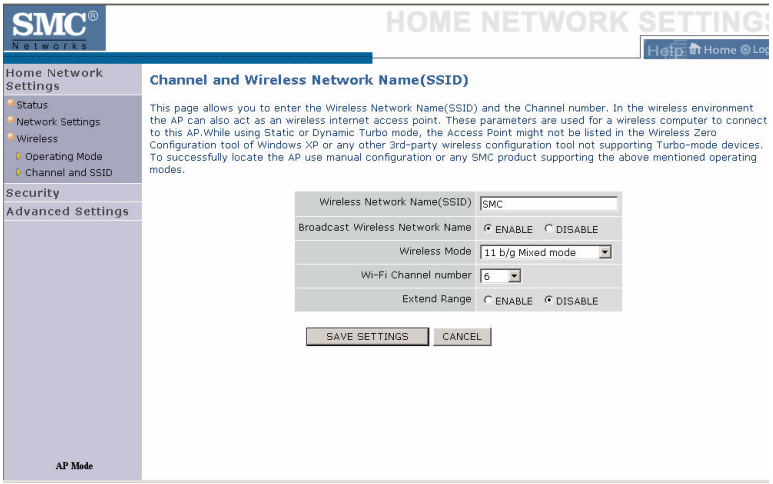
- **Access Point** – If the SMCWEBT-G is in Access Point mode, you must specify a common radio channel and SSID (Service Set ID) to be used by the Wireless AP and all of your wireless clients. Be sure you configure all of your clients to the same values.

- **Repeater** – In Repeater mode, the radio channel and SSID (Service Set ID) of the SMCWEBT-G must be set to the same values as those of the access point with which the Wireless AP is associated.

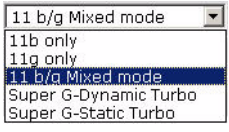
- **Ethernet Client** (Infrastructure, Ad Hoc) – To configure the SMCWEBT-G as an Ethernet Client, all you need to do is click on the provided **Scan** button and the **Activate** check box to associate with the selected access point.



Channel and SSID



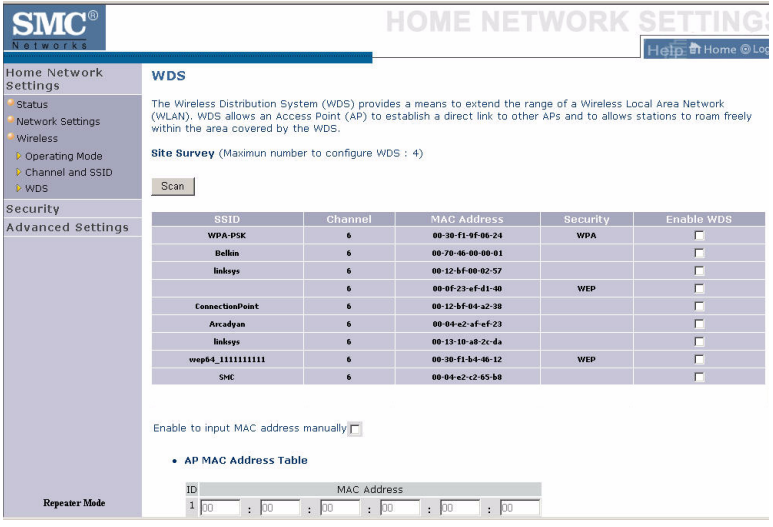
Menu	Description
Wireless Network Name (SSID)	All wireless clients and the wireles access points within a specific ESS must be configured with the same SSID. (Default: SMC)
Broadcast Wireless Network Name (SSID)	Broadcast the SSID on the wireless network for easy connection with client PCs. (Default: Enable)
Wireless Mode	Set the communication mode for the Wireless AP. (Default: 11b/g Mixed Mode) The 802.11g and 802.11b mixed mode is an enhanced operation mode. It provides a long range wireless connectivity of 328 feet associated with the IEEE 802.11b standards by offering faster speeds and longer distances from a wireless access point to a wireless PC card. Turbo Mode: Capable of Packet Bursting, FastFrames, Compression, and Static/Dynamic Turbo. • Static Turbo: This setting is not backwards compatible with non-Turbo (legacy) devices. Static Turbo mode is always on and is only enabled when all devices on the wireless network are SuperG with Static Turbo enabled. • Dynamic Turbo: It is backwards compatible with non-Turbo (legacy) devices. Dynamic Turbo mode is only enabled when all devices on the wireless network are SuperG with Dynamic Turbo enabled.



Menu	Description
Wi-Fi Channel Number	The radio channel through which a wireless access point communicates with PCs in its BSS. (Default: 6) The available channel settings are limited by local regulations which determine the number of channels that are available. • USA: 1 ~ 11 channels • Europe: 1 ~ 13 channels • Japan: 1 ~ 14 channels
Extend Range	In the wireless repeater mode, it allows you to effectively extend the coverage of another SMCWEBT-G that is configured to operate in Access Point mode. (Default: Disable) Note: If this setting is in use, be sure that the associated client is also enabled for this option.

WDS (in Repeater Mode)

The Wireless Distribution System (WDS) provides a means to extend the range of a Wireless Local Area Network (WLAN). WDS allows the Wireless AP to establish a direct link to other wireless base stations and allows clients to roam freely within the area covered by the WDS. To carry out a site survey of available wireless base stations, click **Scan**.



Parameter	Description
SSID	The Service Set ID (SSID) is the name of your wireless network. The SSID must be the same on the Wireless AP and all of its wireless clients.
Channel	This device supports the following modes 11g only, 11b only, 11b/g mixed mode, Super G-Dynamic Turbo and Super G-Static Turbo.
MAC Address	The media access control address (MAC address) is a unique identifier attached to each wireless base station.
Security	Displays the security mechanism in use.
Enable WDS	Enables the WDS feature. When enabled, up to 4 WDS links can be set by clicking on the check box. Make sure the same channel is in use on all devices. (Default: Disable)

- Enable to input MAC address manually (Default: Disable) - Up to 4 WDS links can be set by specifying their wireless MAC addresses in the AP MAC Address Table.

Security

Wireless

Wireless Encryption

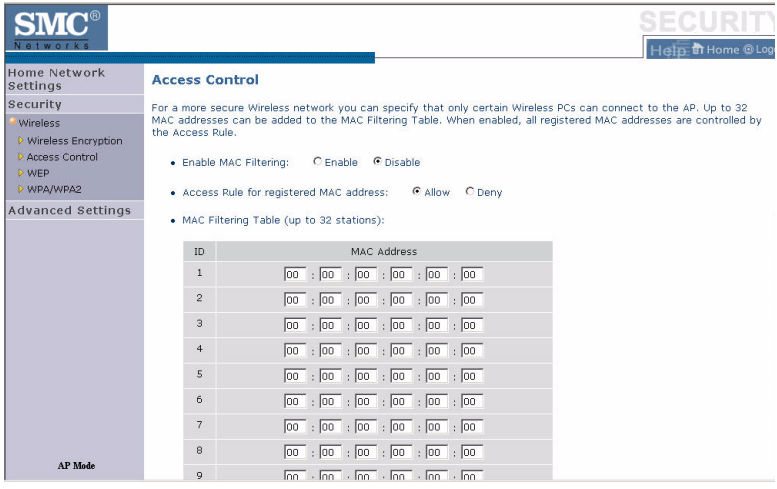
If you are transmitting sensitive data across wireless channels, you should enable Wi-Fi Protected Access (WPA/WPA2) or Wired Equivalent Privacy (WEP) encryption. Encryption security requires you to use the same protocol set (WPA/WPA2 or WEP) and encryption/decryption keys for the Wireless AP and all of your wireless clients.

For a more secure network, the Wireless AP can implement one of the following security mechanisms:

“WEP” on page 34

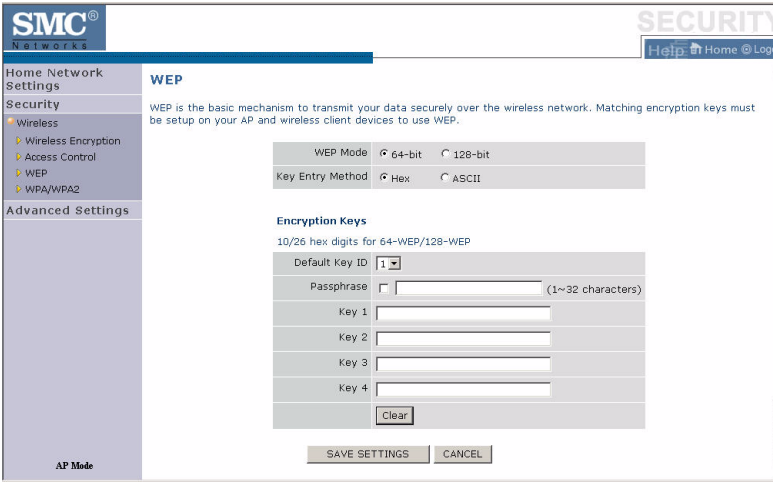
“WPA/WPA2” on page 36

Access Control



The **MAC Filtering** feature of the SMCWEBT-G allows you to control access to your network for up to 32 clients based on the MAC (Media Access Control) address of the client machine. This ID is unique to each network adapter. If MAC address filtering is **enabled**, and the access rule was set to **Allow**, then the MAC address for each client must be listed in the table to allow access to the network. (Default: Disable)

WEP



If you are transmitting sensitive data across wireless channels, you should enable Wired Equivalent Privacy (WEP) encryption.

Encryption requires you to use the same set of encryption/ decryption keys for a wireless access point and all of its wireless clients. The SMCWEBT-G supports shared key encryption with key lengths of the 64-bit standard and 128-bit industry standard.

WEP mode: You can choose 64-bit or 128-bit encryption.

Key Entry Method: Set your key entry to Hex or ASCII.

Encryption Keys

You may manually enter the keys or automatically generate encryption keys. To manually configure the keys, enter 10 digits for each 64-bit key, or enter 26 digits for the single 128-bit key. (A hexadecimal digit is a number or letter in the range 0-9 or A-F.) For automatic 64-bit security, check the box of **Passphrase**, enter a passphrase and click **SAVE SETTINGS**.

Four keys will be generated. Choose a key ID (1-4) from the drop-down list or accept the default key.

- 64-Bit Manual Entry

Key 1~4 - Each Key ID contains 10 HEX digits.

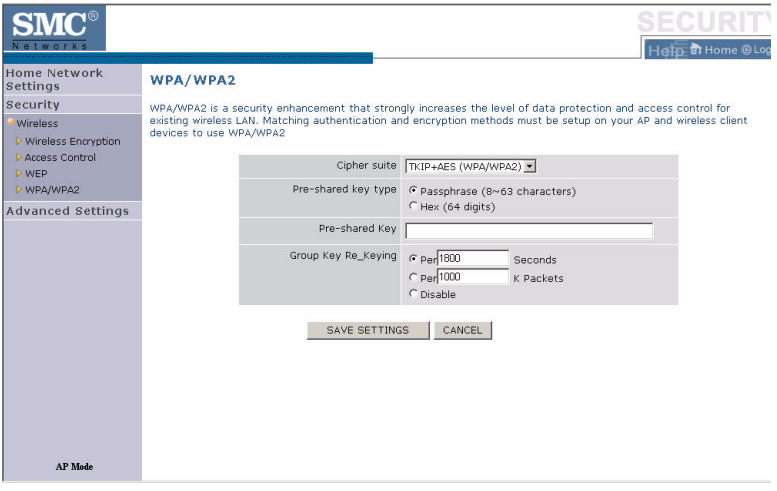
- 128-Bit Manual Entry

Key ID contains 26 HEX digits.

Note that Wired Equivalent Privacy (WEP) protects data transmitted between wireless nodes, but does not protect any transmissions over your wired network or over the Internet.

Note: The Wireless AP will automatically reboot enabling your new settings.

WPA/WPA2



Wi-Fi Protected Access (WPA)/Wi-Fi Protected Access 2 (WPA2) combines Temporal Key Integrity Protocol (TKIP) and Advanced Encryption Standard (AES) mechanisms. It provides dynamic key encryption and mutual authentication service. With TKIP, WPA/WPA2 uses 48-bit initialization vectors, calculates an 8-byte message integrity code, and generates an encryption key periodically. For authentication, it allows you to use Pre-shared Key (PSK) authentication among users in a SOHO network.

Notes: 1. WPA2 is backwards-compatible with WPA.

2. The Wireless AP will automatically reboot enabling your new settings.

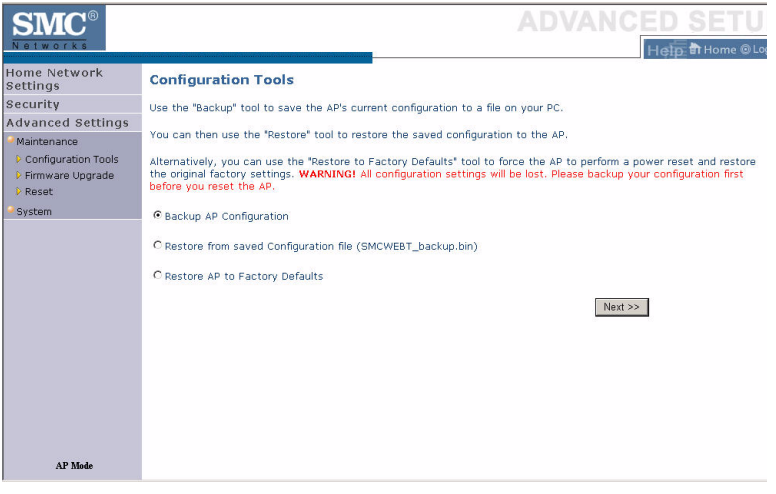
Field	Default Parameter	Description
Cypher suite	TKIP+AES (WPA/WPA2)	The security mechanism used by WPA/WPA2 for frame body and CRC frame encryption
	AES (WPA2 Only)	AES encryption, which is stronger than TKIP, is used for WPA2.
Pre-shared key type	Passphrase (8~63 characters)	Select the key type as pass-phrase or 64-Hex characters
Pre-shared Key	None	Specify in pass-phrase style or in 64-Hex characters
Group Key Re_Keying	Per 1800 seconds	The period for renewing the broadcast/multicast key

Advanced Settings

Maintenance

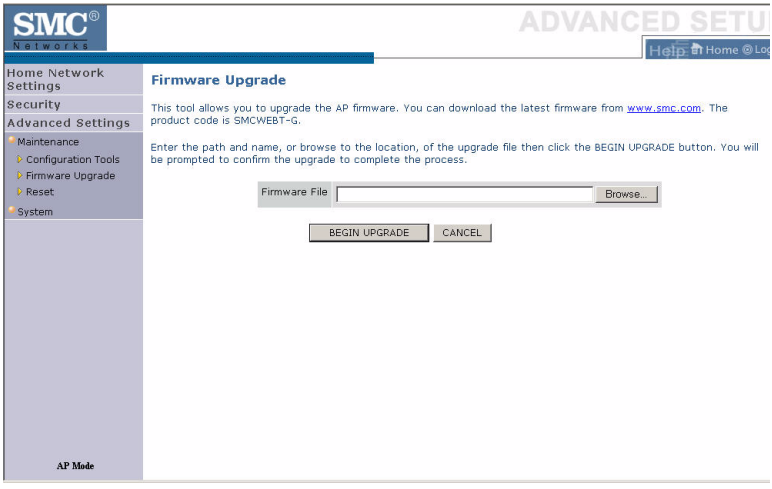
Use the Maintenance menu to back up the current configuration, restore a previously saved configuration, restore factory settings, update firmware, and reset the SMCWEBT-G.

Configuration Tools



- **Backup AP Configuration** – Saves the SMCWEBT-G's configuration to a file.
- **Restore from saved configuration file** – Restores settings from a saved backup configuration file.
- **Restore AP to Factory Defaults** – Restores the SMCWEBT-G settings back to the original factory defaults.

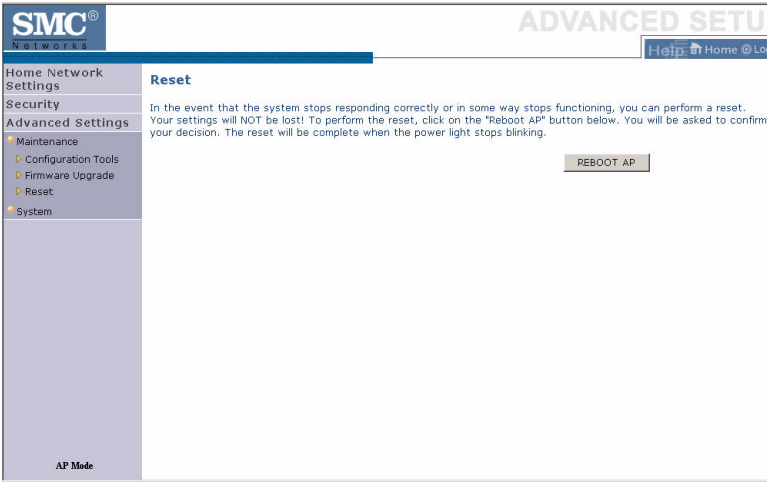
Firmware Upgrade



Use this screen to update the firmware to the latest version. Download the upgrade file from the web site and save it to your hard drive. Click **Browse** to look for the previously downloaded file. Click **BEGIN UPGRADE**.

Check the Status screen INFORMATION section to confirm that the upgrade process was successful.

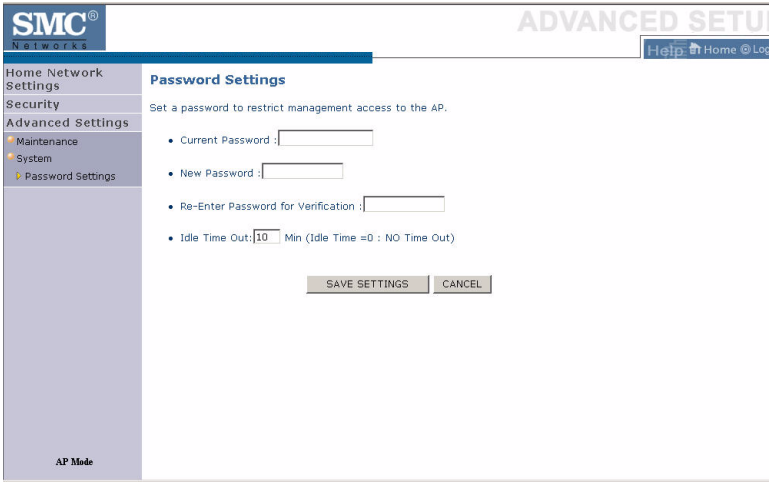
Reset



Click **REBOOT AP** to reset the SMCWEBT-G. Your settings will not be changed. The reset will be complete when the power LED is lit red.

System

Password Settings



Use this menu to restrict access based on a password. (Default: smcadmin). For security reasons, you should change the default password before exposing the SMCWEBT-G to the Internet.

Passwords can contain from 3 to 12 alphanumeric characters and are case sensitive.

Enter a maximum **Idle Time Out** (in minutes) to define a maximum period of time for which the login session is maintained during inactivity. If the connection is inactive for longer than the maximum idle time, it will be logged out, and you have to log in to the web management system again. (Default: 10 minutes)

NETWORK CONFIGURATION AND PLANNING

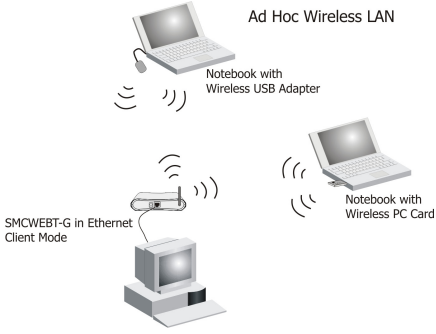
The Wireless Solution supports a stand-alone wireless network configuration, as well as an integrated configuration with 10 Mbps Ethernet LANs. For a list of the maximum distances between the AP/Bridge and wireless clients, refer to page 47.

The wireless network cards and adapters can be configured as:

- Ad hoc – for small departmental or SOHO LANs
- Infrastructure – for enterprise LANs

Network Topologies

Ad Hoc Wireless LAN



An ad hoc wireless LAN consists of a group of computers, each equipped with a wireless adapter or SMCWEBT-G Ethernet Client, connected via radio signals as an independent wireless LAN. Computers in a specific ad hoc wireless LAN must be configured to the same radio channel.

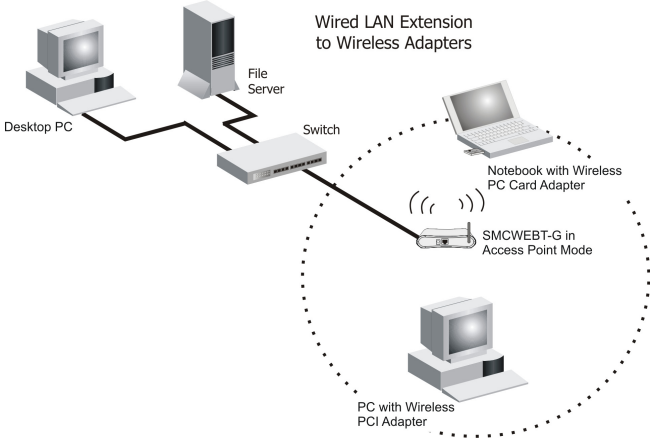
An ad hoc wireless LAN can be used for a small branch office or SOHO operation.

Infrastructure Wireless LAN

An integrated wired and wireless LAN is called an infrastructure configuration. A Basic Service Set (BSS) consists of a group of wireless PC users, and an access point that is directly connected to the wired LAN. Each wireless PC in this BSS can talk to any computer in its wireless group via a radio link, or access other computers or network resources in the wired LAN infrastructure via the access point.

The infrastructure configuration permits wireless clients to access the wired LAN and also increases the effective wireless transmission range for wireless clients as their signal can be passed through multiple access points.

A wireless infrastructure can be used for access to a central database, or for connection between mobile workers, as shown in the following figure.

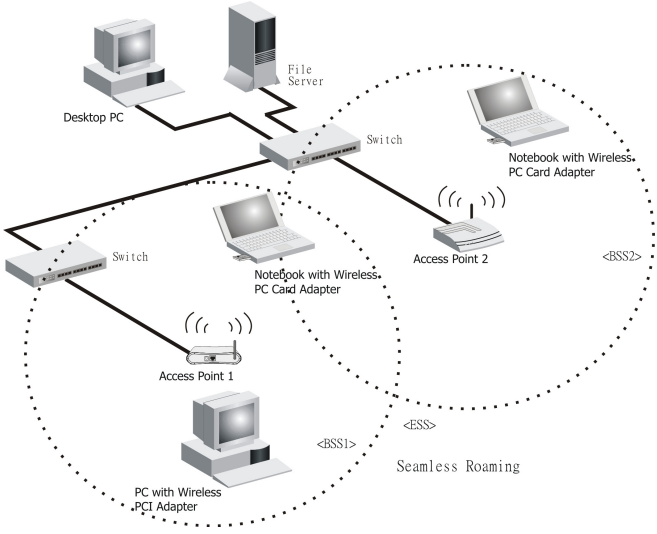


Infrastructure Wireless LAN for Roaming Wireless PCs

The Basic Service Set (BSS) is the communications domain for each wireless access point. For wireless PCs that do not need to support roaming, set the domain identifier (SSID) of the wireless card to the SSID of the access point to which you want to connect. Check with your administrator for the SSID of the access point to which he wants you to connect.

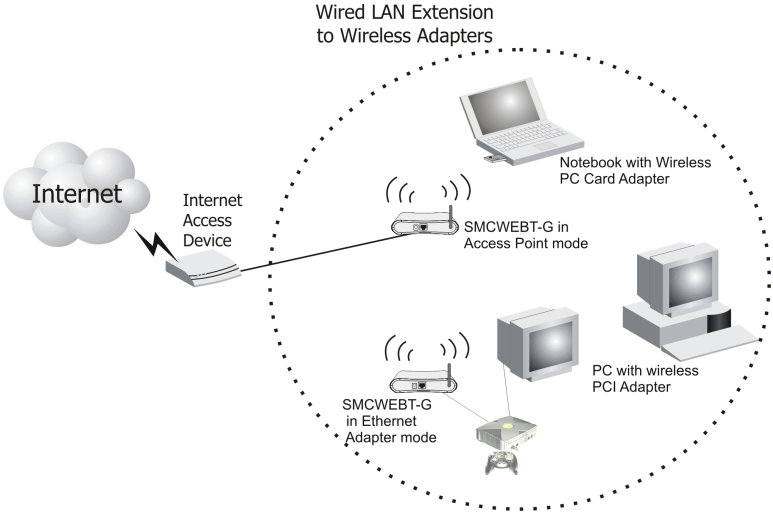
A wireless infrastructure can also support roaming for mobile workers. More than one access point can be configured to create an Extended Service Set (ESS). By placing the access points so that a continuous coverage area is created, wireless users within this ESS can roam freely. All wireless network cards, adapters, and the wireless access point within a specific ESS must be configured with the same SSID.

Note: If Access Point 2 is replaced by an SMCWEBT-G set to Repeater mode then the SMCWEBT-G will not establish its own BSS, but will repeat data messages between Access Point 1 and end users, thus extending the coverage area of Access Point 1.



A Wireless LAN with Internet Access

In this application one SMCWEBT-G is in Ethernet client mode connected to a Microsoft Xbox. Another SMCWEBT-G is acting in access point mode. This provides a wireless network and also Internet access for applications including Internet game playing.



TROUBLESHOOTING

Check the following items before you contact technical support.

1. If mobile users do not have roaming access to the SMCWEBT-G:

   Make sure that all the SMCWEBT-Gs and stations in the ESS in which the WLAN mobile users can roam are configured to the same WEP setting, SSID, and authentication algorithm.

2. If the management utility cannot connect to the SMCWEBT-G:

   Check that your local IP address settings conform to the SMCWEBT-G settings.

3. If you forgot your password or your SMCWEBT-G has locked up, you can reset it to factory defaults by performing the following steps:

   - Use a pin to push in the RELOAD button for over 8 seconds. This button is located on the bottom of the SMCWEBT-G.
   - The SMCWEBT-G will begin to load the default settings.
   - The SMCWEBT-G will restart with the factory default settings.

Maximum Distance Table

Important Notice

Maximum distances posted below are actual tested distance thresholds. However, there are many variables such as barrier composition and construction and local environmental interference that may impact your actual distances and cause you to experience distance thresholds far lower than those posted below.

802.11b Wireless Distance Table				
	Speed and Distance Ranges			
Environment	11 Mbps	5.5 Mbps	2 Mbps	1 Mbps
Outdoors[1]	300 m 984 ft	465 m 1525 ft	500 m 1639 ft	515 m 1689 ft
Indoors[2]	60 m 197 ft	70 m 230 ft	83 m 272 ft	85 m 279 ft

802.11g Wireless Distance Table												
	Speed and Distance Ranges											
Environment	54 Mbps	48 Mbps	36 Mbps	24 Mbps	18 Mbps	12 Mbps	11 Mbps	9 Mbps	6 Mbps	5 Mbps	2 Mbps	1 Mbps
Outdoors[1]	82 m 269 ft	100 m 328 ft	300 m 984 ft	330 m 1082 ft	350 m 1148 ft	450 m 1475 ft	470 m 1541 ft	485 m 1590 ft	495 m 1623 ft	510 m 1672 ft	520 m 1705 ft	525 m 1722 ft
Indoors[2]	20 m 66 ft	25 m 82 ft	35 m 115 ft	43 m 141 ft	50 m 164 ft	57 m 187 ft	66 m 216 ft	71 m 233 ft	80 m 262 ft	85 m 279 ft	90 m 295 ft	93 m 305 ft

Notes: 1. Outdoor Environment: A line-of-sight environment with no interference or obstruction between the Wireless AP and clients.

2. Indoor Environment: A typical office or home environment with floor to ceiling obstructions between the Wireless AP and clients.

SPECIFICATIONS

Standards

IEEE 802.3 10BASE-T Ethernet
IEEE 802.3u 100BASE-TX Fast Ethernet
IEEE 802.11b
IEEE 802.11g

Data Rates

1/2/5.5/6/9/11/12/18/24/36/48/54 Mbps

Frequency Band

IEEE 802.11b/g Radio: 2.4 GHz

USA -	FCC 2412~2462 MHz (Ch1~Ch11)
Canada -	IC2412~2462 MHz (Ch1~Ch11)
Europe -	ETSI 2412~2472 MHz (Ch1~Ch13)
Japan -	STD-T66/STD-332412~2484 MHz (Ch1~Ch14)

Modulation Type

OFDM, CCK Operating Channels
IEEE 802.11b/g compliant
11 channels (US, Canada)
13 channels (ETSI)
14 channels (Japan)

Antenna

One detachable external antenna with RP-SMA connector:
1.5 dBi omni-directional dipole
One internal 2 dBi dipole antenna

Sensitivity Modulation Rate

Modulation Rate	*Receive Sensitivity Typical (dBm)*
802.11b - 1 Mbps	-90
802.11b - 2 Mbps	-88
802.11b - 5.5 Mbps	-85
802.11b- 11 Mbps	-82
802.11g - 6 Mbps	-88
802.11g - 9 Mbps	-87
802.11g - 12 Mbps	-84
802.11g - 18 Mbps	-82
802.11g - 24 Mbps	-79
802.11g - 36 Mbps	-75
802.11g - 48 Mbps	-68
802.11g - 54 Mbps	-68

RF Output Power

Modulation Rate	*Output Power (dBm)*
802.11b - 1 Mbps	16
802.11b - 2 Mbps	16
802.11b - 5.5 Mbps	16
802.11b- 11 Mbps	16
802.11g - 6 Mbps	15
802.11g - 9 Mbps	15
802.11g - 12 Mbps	15
802.11g - 18 Mbps	15
802.11g - 24 Mbps	15
802.11g - 36 Mbps	15
802.11g - 48 Mbps	12
802.11g - 54 Mbps	12

Physical Size

14.30 x 12.20 x 3.03 cm (5.63 x 4.80 x 1.19 in.)

Weight

150 g (5.3 oz)

Power Supply

Input

US: 100-120 AC, 50-60 Hz

EU: 200-240 AC, 50-60 Hz

Ouput: 5 VDC, 1A

US: DSA-0151A-05A

EU: DSA-0151A-05U

Power Consumption

5 V, 700 mA maximum

Temperature
Operating: 0 to 40 °C (32 to 104 °F)
Storage: -40 to 70 °C (-40 to 158 °F)

Humidity
5% to 95% (non-condensing)

LED Indicators
Power, Ethernet Link/Activity,
Wireless Activity (TX/RX)

Network Management
Windows 98SE/Me/2000/XP SNMP Management Utility

Operating System Compatibility
Windows 98SE/Me/2000/XP

Supported Protocol
TCP/IP, IPX

Encryption
64-bit/128-bit WEP
WPA/WPA2

Compliances
CE Mark
EN55022 Class B
EN55024
IEC 61000-42/3/4/6/11

Emissions
FCC Part 15 Class B
ETSI 300.328
ARIB STD33 and T66

FOR TECHNICAL SUPPORT, CALL:
From U.S.A. and Canada (24 hours a day, 7 days a week)
(800) SMC-4-YOU; Phn: (949) 679-8000; Fax: (949) 679-1481
From Europe : Contact details can be found on
www.smc-europe.com or www.smc.com
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